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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
IN RE THE APPLICATION OF:

Corcoran

Grp. Art. Unit: 2855

Application No: 10/782,299

Examiner: Miller, Takisha S.

Filing Date: February 19, 2004

Date: January 11, 2005

COMPACTION QUALITY ASSURANCE BASED UPON QUANTIFYING COMPACTOR INTERACTION WITH BASE MATERIAL

Atty. Dkt. No: 03-111

RESPONSE TO OFFICE ACTION

In response to the Office Action dated October 15, 2004, please consider the following remarks. Reconsideration of the present application is respectfully requested.

Claims 1-4, 6, 7, 9-15, 17, 18 and 20 stand rejected under 35 USC §102(b) over Troxler, Sr. et al. Applicant respectfully disagrees since Troxler, Sr. et al. teaches a method and apparatus for obtaining real time density measurements, but in no way teaches the quantification of a sinkage deformation interaction between the compactor and the base material, as required by Applicant's claims. There should be no dispute that the MPEP and relevant case law require that a reference disclose exactly what an Applicant has claimed in order to support a §102 rejection. In this case, Troxler teaches a methodology for obtaining real time density measurements using a nuclear radiation apparatus whose accuracy is very sensitive to air gap distance from the base material. While it is true that Troxler, Sr. et al. teach mounting their nuclear radiation apparatus on a compactor, as in Applicant's claimed invention, the device measures density of the base material, which is something other than a sinkage deformation interaction as required by Applicant's claims. In other words, there is no way to read Applicant's claimed sinkage deformation interaction limitation consistent with Applicant's specification, as it must be, and also fairly read the same onto what is taught by Troxler, Sr. et al. This important distinction between the claimed invention and Troxler, Sr. et al. is revealed when one considers that the Troxler density measuring device and strategy could be implemented on any vehicle that could be

moved over a base material. For instance, in one absurd extreme, it would appear that the Troxler radiation apparatus could be mounted on a hover craft that moved over a base material but never even touches or compacts the same. Thus, Troxler, Sr. et al. teach the measurement of density, but that is something different than quantifying a sinkage deformation interaction between the compactor and the base material, as required by Applicant's claims. Therefore, Applicant respectfully requests that all of the outstanding §102 rejections be withdrawn.

There should be no dispute that the essence of compacting base material is to allow for the construction of something such as a road or building, on the base material, and that the base material will support the constructed thing without deforming more than some predetermined magnitude. While it is true that time has shown that a Troxler type density measurement of a known base material is strongly correlated to how well that base material could support a building or road, it is not a deformation interaction measurement of anything, let alone a sinkage deformation interaction between a compactor and the base material. Applicants disclosure, on the other hand, insightfully recognizes that there is probably no better predictor of how well a base material will support a heavy structure built on top of it than measuring sinkage deformation of the base material when a heavy object, such as a compactor, is moved over the base material. Thus, while it is true that Troxler, Sr. et al. teaches a device and strategy for determining in real time an estimated density of a base material, it does so by a means other than quantifying a sinkage deformation interaction between the compactor and the base material as required by Applicants claims. Therefore, Applicants again respectfully request that the outstanding §102 rejections be withdrawn.

With regard to claims 2, 3 and 4, they explicitly require even more features that are not shown or suggested by Troxler, Sr. et al. The Office Action asserts that Troxler teaches an energy interaction between the compactor and the base material at column 9, lines 4-14. Applicants respectfully disagree. Instead, what Troxler teaches is an energy interaction between a nuclear radiation apparatus and the base material. In other words, Troxler, Sr. et al. does not teach a compactor that produces nuclear radiation, but instead teaches a compactor that carries a device that produces nuclear radiation. Thus, it is unfair to characterize Troxler as teaching an energy interaction between the compactor and the base material as required by Applicant's claims. Therefore, Applicants respectfully request that the outstanding rejections against claims 2, 3 and 4 be withdrawn over and above the reasons set forth with regard to claim 1.

With regard to claim 3, Applicant's claim requires that compaction quality control data be gathered by first and second sets of sensors. It is this aspect of the invention that could allow for more accurate determination of compaction state via determination from two or more separate methodologies, such as via effective roller radius and energy interaction. The Office Action asserts that Troxler, Sr. et al. teaches this aspect of Applicant's claimed invention. Again, Applicant respectfully disagrees. Instead, Troxler, Sr. et al. recognizes that the nuclear radiation device is relatively useless without accurate air gap information. Therefore, Troxler et al. teaches a combination of sensors (nuclear and air gap), that together allow for estimation of the density of the base material. Even Troxler, et al. recognizes that neither the nuclear apparatus nor the air gap measuring device alone can accurately measure base material density. Troxler et al. also fails to recognize that the accuracy of their strategy might be improved by mounting two or more nuclear detection/air gap measurement sensor groups on the compactor. Therefore, since Troxler, Sr. et al. neither discloses what the Office Action asserts nor what Applicant has claimed, Applicant again respectfully requests that the outstanding rejections against claims 3 and 4 be withdrawn over and above the reasons set forth with regard to their base claims.

With regard to claim 4, it is probably fair to say that Troxler utilizes both the nuclear radiation detection data and the air gap data to arrive at a density estimate. Troxler, Sr. et al. does not teach two separate determinations of compaction quality control data that are later merged as per Applicants claim 4. It is this aspect of Applicant's disclosure that allows for a potential symbiotic relationship in estimating compaction state by merging data originating from two separate strategies. Therefore, the outstanding rejection against claim 4 should be withdrawn over and above the reasons set forth with regard to base claims 1-3.

Applicants respectfully assert that the rejections against independent claim 11 and its dependent claims should be withdrawn from the same reasons set forth above with regard to claim 1.

Claim 12 should be allowable over and above the reasons set forth with regard to claim 11 since Troxler, Sr. et al. teaches the measurement of base material density, which is something distinctly different from Applicant's claimed compactor sinkage determination algorithm. In other words, Applicants concede that there likely exists a correlation between sinkage deformation data and the base material density; however, Troxler, Sr. et al. fails to show or

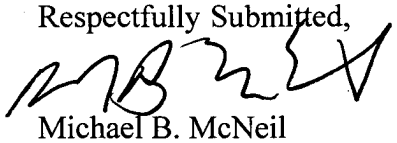
suggest, or even recognize any such relation. Therefore, Troxler, Sr. et al. cannot fairly anticipate subject matter that it fails to contemplate and/or recognize.

Claims 13, 14 and 15 should be allowable over and above base claim 11 for reasons similar to those set forth with regard to claims 2, 3 and 4, respectively.

Claims 5, 8, 16 and 19 stand rejected under 35 USC §103(a) over Troxler, Sr. et al. in view of Swanson et al. Applicants respectfully disagree since even when combined, the two cited references do not even mention the provision of compaction quality assurance data to a third party inspector. The Office Action, however, asserts that because Swanson et al. supposedly teaches the transmission of compaction data to remote locations, that one with ordinary skill in the art would find it obvious to transmit the Troxler data to a third party inspector. But Applicants respectfully assert that the MPEP and relevant case law require that there be some teaching suggestion or incentive to engage in the modification claimed by the Applicant in order to support a §103 rejection. In this instance, at best, one with ordinary skill in the art would find it obvious to try transmitting compaction state data to a third party inspector in view of Troxler and Swanson. But obvious to try is not the standard under §103. Thus, because there is no implicit, inherent, or explicit teaching suggestion that would motivate one with ordinary skill in the art to provide the on board Troxler, Sr. data to a third party inspector, with or without help from Swanson et al., Applicant respectfully requests that the outstanding §103 rejections be withdrawn.

In view of the arguments submitted, this application is believed to be in condition for allowance of claims 1-20. However, if the Examiner believes that some minor additional clarification would put this application in even better condition for allowance, Applicants invite the Examiner to contact the undersigned attorney at (812) 333-5355 in order to hasten the prosecution of this application. For instance, does the Examiner have any suggested terminology other than Applicant's claimed sinkage deformation interaction language that would better distinguish the claimed subject matter from anything fairly taught by Troxler, Sr. et al.?

Respectfully Submitted,



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